DOCUMENT RESUME

ED 159 347 CE 016 673

TITLE	Fire Service Training. Ventilation. (Revised).
INSTITUTION	North Carolina State Dept. of Community Colleges, Raleigh.
REPORT NO	FIP-3024
PUB DATE	Jun 74
NOTE	27p.; The manual for this unit is available from International Fire Service Training Association, Fire Service Publications, Oklahoma State University, Stillwater, Oklahoma 74074 ($4.50); Transparencies for this unit are available from Robert J. Brady Company, Bowie, Maryland 20715 (Unit 13, $123.20); For related documents see CE 016 662-675
EDRS PRICE	MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS	Building Design; Course Content; Educational Programs; Fire Protection; *Fire Science Education; Instructional Materials; *Job Skills; *Ventilation

ABSTRACT

One of a set of fourteen outlines for use in a course to train novice firemen, this guide covers ventilation practices and principles. As background, subjects such as heat transmission and building construction are included. The three objectives of this part of the course are to enable the fireman to (1) rescue trapped victims, (2) locate fires as quickly as possible, and (3) extinguish fires with minimum damage. Designed to be used with the Robert J. Brady Transparencies and the International Fire Service Training Association manual, "Fire Ventilation Practices" (see note), this outline refers to specific page and transparency numbers as guides. (An outline of the whole course covering all fourteen topics briefly is in the first volume of the set--CE 016 662.) (ELG)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED159347

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Elsie Brumback

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

VENTILATION

PURPOSE

Ventilation practices during fire fighting is to some extent a controversial subject. Probably no one subject has brought more concern to the fire service than that of ventilation. Practically every fire department can describe a condition where ventilation procedures that were followed left something to be desired.

Ventilation practices generally are considered technical practices. And to perform them successfully, one must understand what happens inside a building when it fills with smoke from a smoldering fire, and what is likely to happen if the condition is handled improperly. Along with understanding, a high degree of cooperation is required, and the fire fighter must assume his responsibilities as they occur.

The purpose of this outline is to present the principles and practices of ventilation in a manner which will provide a basis for training. This outline was developed to be used in conjunction with the International Fire Service Training Association manual Fire Ventilation Practices and the Robert J. Brady Transparencies.

AIM

To present information which may serve as a substantial basis for training fire fighters in ventilation practices, so that they may successfully:

1. Rescue trapped victims.
2. Locate fires as quickly as possible.
3. Extinguish the fire with minimum damage.

COURSE OUTLINE	GUIDES
I. Definition of Ventilation - The planned and systematic release and removal of heated air, smoke and gases from a structure and the replacement of these products of combustion with cooler air.	
II. Advantages of Proper Ventilation in Fire Control.	Brady Transparencies Unit 13, Sec. 1 No. 2
A. Aids in life saving and rescue.	
B. Speeds attach and extinguishment.	
C. Reduces the damage of back draft or smoke explosion.	
D. Reduces mushrooming.	
E. Makes firefighting easier.	
F. Reduces fire and water damage.	
G. Reduces heat and smoke damage.	
H. Permits prompt salvage operations.	
I. Helps provide confinement.	
III. The Burning Process.	Brady Transparencies Unit 13, Sec. 1 Nos. 1, 2, 3
A. Requirements for burning.	
1. Fire triangle.	Show fire triangle aid
(a) Oxygen.	
(b) Heat.	Fire Vent. Practices Page 12, Fig. 1
(c) Fuel.	
2. Fire tetrahedron.	
(a) Oxygen - oxidizing agent.	
(b) Heat - temperature.	

COURSE OUTLINE	GUIDES
(c) Fuel - reducing agent.	Fire Vent. Practices Page 16, Fig. 4
(d) Chemical chain reaction.	
B. Flammable liquid characteristics. (Liquids with flash point below 140 degrees fahrenheit.)	
1. Flash point.	Fire Vent. Practices Page 18, Fig. 5
2. Burning point.	Fire Vent. Practices Page 18, Fig. 6
3. Ignition temperature.	Fire Vent. Practices Page 18, Fig. 7
4. Explosive limits.	Fire Vent. Practices Page 20, Fig. 8
5. Vapor density.	Fire Vent. Practices Page 21, Fig. 9
C. Products of combustion.	
1. Fire gases.	
2. Flame.	
3. Heat.	
4. Smoke.	
D. Fire in a closed building.	
1. When a fire is confined in a building or room, a situation develops which requires carefully calculated and executed ventilation procedures.	
2. Three stages in a closed building fire.	Brady Transparencies Unit 13, Sec. 1
(a) Stage 1 - incipient or beginning phase.	No. 4
(1) Heat is being generated and amount increases with progress of fire.	Fire Vent. Practices Page 26, Fig. 11

COURSE OUTLINE	GUIDES
(2) Approximately 20% oxygen in air.	
(3) Room temperature slightly over 100° F.	
(4) Ventilation is not a problem.	
(5) Best method of extinguishment is direct application of water at base of fire.	
(b) Stage 2 - free burning phase.	
(1) Oxygen content is being reduced, but enough remains to support free burning.	Fire Vent. Practices Page 27, Fig. 12
(2) Room temperature rises (upper region may have temperature of 1300° F.)	
(3) All combustibles in upper levels of room or building will ignite during this phase.	
(4) Ventilation still not a definite need.	
(c) Stage 3 - smoldering phase.	Fire Vent. Practices Page 28, Fig. 13
(1) Low oxygen content (below 15%) causes fire to be reduced to glowing embers.	
(2) Very high temperature throughout building.	
(3) Room filled with dense smoke.	
(4) Human body cannot survice in this type of atmosphere.	
(5) Oxygen deficiency may cause backdraft.	

COURSE OUTLINE	GUIDES
(6) Ventilation is a must. Note: Third phase is the most dangerous. The building must be ventilated before entering, and care should be exercised by firefighters when ventilating. For example, when doors and windows are opened, possible backdraft or smoke explosion might occur. Improper ventilation procedures may allow oxygen-bearing air to fill areas where highly preheated combustible materials await it, allowing it to burst into a free-burning state. This condition is commonly known as backdraft.	
E. Potbellied stove. 1. Basic principles of ventilation can be illustrated by the condition found in a potbellied stove. 2. Parts. (a) Damper - ventilation. (b) Fuel box - fire area. (c) Ash box - below fire area.	Fire Vent. Practices Page 31, Fig. 14
F. Smoke explosions on backdrafts. 1. Where there is insufficient oxygen present for combustion in a closed building fire,	Fire Vent. Practices Page 32, Fig. 15

COURSE OUTLINE	GUIDES
many unburned gases may collect in pockets or even fill the entire building. This condition requires only the admission of sufficient fresh air to cause a very rapid burning of these gases, the expansion of which may be sufficient to cause an explosion. Such an explosion is commonly called a backdraft.	
2. Degree of intensity of backdraft depends upon.	
(a) Degree of confinement.	
(b) Amount of heated gases.	
(c) Rate of fresh air admitted.	
(d) Volume of fresh air admitted.	
3. You reduce the possibility of backdraft by proper ventilation.	
(a) Open building at highest point involved.	
(b) Have hose lines ready to apply water immediately upon opening.	
G. Transmission of heat.	
1. Law of heat flow - heat tends to flow from a hot substance to a cold substance.	
2. Four methods of heat flow.	
(a) Conduction.	Fire Vent. Practices Page 34, Fig. 16
(b) Radiation.	Page 34, Fig. 17
(c) Convection.	Page 35, Fig. 18
(d) Direct contact with flow.	Page 35, Fig. 19

COURSE OUTLINE	GUIDES
H. The law of specific heat.	Page 38, Fig. 20
1. A measure of the heat absorbing capacity of a substance measured in British Thermal Units (BTU's) or calories.	
(a) A British Thermal Unit is the amount of heat required to raise one pound of water one degree Fahrenheit.	
(b) A calorie is the amount of heat required to raise one gram of water one degree Centigrade.	
2. Gives indication of the relative quantity of heat required to raise temperatures to a danger point or how much heat must be removed to cool a substance to a safe temperature.	
I. Laws of latent heat of vaporization.	Fire Vent. Practices Pages 39 & 40 Figs. 21 A & B
Note: Instructor should carefully consult.	
1. The quantity of heat absorbed by a substance when it changes from a liquid to a vapor.	
2. Measured in BTU's per pound of water.	
IV. Construction Features to Be Considered in Planning for Ventilation Operations.	Fire Vent. Practices Page 47, Fig. 24
A. Fire stops.	
1. Pieces of wood two inches thick placed in walls, partitions, ceilings, and between studs at each floor level.	Fire Vent. Practices Page 46, Fig. 23

COURSE OUTLINE	GUIDES
2. The purpose of fire stops is to cut off the draft within the walls and thus help prevent the spread of fire and smoke.	
B. Roof construction.	Fire Vent. Practices P. 48, Fig. 25
1. Top or vertical ventilation is directly related to roof construction and to vertical openings. A study of the common types of roofs and the manner in which their construction effects ventilation practices is necessary to develop effective vertical ventilation procedures.	
2. Main types of roof construction.	
(a) Flat roof.	Fire Vent. Practices P. 50, Fig. 26
(b) Pitched roof.	Fire Vent. Practices P. 51, Fig. 27
(c) Arched roof.	Fire Vent. Practices P. 52, Fig. 28
C. Roof openings.	Brady Transparencies Unit 13, Sec. 1, No.16
1. Where possible, fire fighters should take advantage of natural roof openings in accomplishing ventilation.	
2. Examples of natural roof openings.	
(a) Roof stairway access doors.	
(b) Hatches.	
(c) Skylights.	
(d) Ventilation openings.	
(e) Elevator shafts.	

COURSE OUTLINE	GUIDES
D. Occupancy and contents. 1. Occupancy hazards are equally as important as construction features in relation to the study of ventilation. 2. Special factors which will affect the ventilation procedure. (a) Number and location of people occupying the building. (b) The extent to which escape routes may be blocked or rendered inaccessible by fire or smoke. (c) Alternate escape routes available. (d) The amount, type and kind of combustibles that make up the contents. (e) The location of these combustibles. (f) The toxicity and explosion hazard of the contents. (g) Fire detecting and extinguishing system available. (h) Fire department of manpower and types of equipment. E. Automatic venting devices. 1. The need for automatic smoke vents came as a result of construction and lighting improvements which enable large buildings to be built with windowless exterior walls and without supporting interior walls.	

COURSE OUTLINE	GUIDES
2. Types of devices. Note: Instructor explain each in detail. (a) Curtain boards. (b) Monitors. (c) Continuous gravity vents. (d) Unit type vents. (e) Skylights. (f) Exterior wall window (near ceiling level).	 Fire Vent. Practices Page 54, Fig. 29 Page 55, Fig. 30 Page 56, Fig. 31 Fire Vent. Practices Page 57, Fig. 32
F. Underground structures. 1. Normally required to have easy access for firefighters. 2. Always consider basement relationship to main structure when it is involved in fire. 3. Normally basements require forced ventilation.	 Fire Vent. Practices Page 59, Fig. 33 Brady Transparencies Unit 13, Sec. 1 No. 23
G. Windowless building. 1. Windowless buildings present special problems. 2. Firefighters must become familiar with the designs, contents, systems, and access route in the building.	
H. High-rise buildings. 1. Specific plan for firefighting should be developed for high-rise buildings because of the unique problem they present. 2. Normally, ventilation must be accomplished horizontally on the level involved by fire and immediately above the fire where smoke and heat have spread.	Fire Vent. Practices Page 62, Fig. 34

COURSE OUTLINE	GUIDES

V. The Ventilating Process.

A. Evaluating and sizing up for ventilation.

Note: What may the firefighter expect to find inside a burning building? Many times fires get out of control because buildings are opened up before the possibilities of the situation are considered.

1. Requirements for ventilation.

(a) Questions to be answered.

(1) Is there a need for ventilation at this time?

(2) Where is ventilation needed?

(3) What type of ventilation should be used?

2. The nature of accumulated gas and smoke.

(a) A closed building containing a smoldering fire generally will be filled with smoke and heat gases.

(b) Hindering effects of smoke.

(1) Some physical discomfort - coughing, watering eyes.

(2) Density may make it impossible to find the fire.

(c) Most common gases produced and their effects.

(1) Carbon dioxide - not toxic, but may suffocate because it replaces oxygen in the air.

COURSE OUTLINE	GUIDES
(2) Carbon monoxide - product of incomplete combustion. (a) Extremely toxic - Atmosphere containing as little as one-half of one percent will produce unconsciousness swiftly. (b) Highly explosive - Range of 12.5 percent to 74 percent. (c) Ignition temperature - 1204° F. (3) Sulphur dioxide. (a) Non-flammable but highly toxic. (b) Irritating and suffocating. 3. Indications of existing conditions. (a) Firefighters must be able to observe and interpret the indications. (b) Firefighters must rely upon their senses - sight, smell, touch, taste, and hearing. 4. Visible smoke conditions. (a) The content of smoke can be determined only by chemical analysis. However, the color of smoke may be of some value in determining what is burning, however, it is not always a reliable indicator. (b) Smoke indications. (1) Black smoke - usually the result of burning rubber, tar, roofing, oil or other flammable liquids. (2) Brown smoke - may indicate nitrous fumes.	Fire Vent. Practices Page 69, Fig. 35

COURSE OUTLINE	GUIDES
(3) Grayish-yellow smoke - danger signal of an approaching backdraft.	
(c) Smoke escape points may indicate the location of fire and offer a possible solution of ventilation problems.	Fire Vent. Practices Pgs. 70 & 71, Figs. 36 & 37
(d) Speed of emerging smoke indicates inside conditions.	P. 71, Fig. 38
5. Heat conditions and fire severity.	
(a) Fire fighters may obtain an indication of the heat intensity by feeling the walls, doors and windows.	
(b) Fire severity may be measured to a reasonable degree of accuracy by two factors - time and temperature.	
6. Providing fire control.	
(a) Provide man power and adequate fire control facilities for the building involved and other exposed buildings.	Fire Vent. Practices P. 78, Fig. 39
(b) Next requirement is to reach the base of the fire for extinguishment.	
7. Potential hazards.	
(a) Life hazards.	
(1) To occupants.	
(a) May be overcome by smoke and gases.	
(b) May become lost or panicky.	
(c) May become prostrate from heat.	

COURSE OUTLINE	GUIDES
(2) To fire fighters and rescuers. (a) Obscurity caused by dense smoke. (b) Presence of poisonous and flammable gases. (c) Lack of oxygen for breathing. (d) Serious structural damage. (3) Fire fighters can judge temperature in an area by knowing ignition temperature of various materials. (a) Dry wood - approximately 500° F. (b) Paper - approximately 450° F. (c) Cotton cloth - approximately 440° F. (d) Pyroxylin plastic - as low as 275° F.	
8. Performing rescue work. (a) Should be given top priority. (b) Protective clothing and self-contained breathing apparatus are essential for rescue personnel. (c) Determine point of entrance that provides best advantage to rescuers and least possible aid to fire.	
9. Sizing up the situation for ventilation.	Brady Transparencies Unit 13, Sec. 1 Nos. 21 and 22

COURSE OUTLINE	GUIDES
(a) When a fire alarm has been transmitted to the firefighters, those in charge should begin to anticipate the possibilities that may be encountered at the fire location. (b) Steps for sizing up the situation. (1) Anticipating the situation. (2) Gathering the facts. (3) Evaluating the facts. (4) Determining the procedures.	
B. Top or vertical ventilation - (One of the common methods for removing smoke and heat from a burning building is by opening the burning building at a strategic place to permit smoke and heat to escape by the upward movement of heat currents). 1. Factors influencing top or vertical ventilation. (a) Building construction features. (1) Stairway. (2) Shafts. (3) Dumbwaiters. (4) Ducts. (5) Roof construction and openings. (6) Heating, ventilating and air conditioning systems.	Brady Transparencies Unit 13, Sec. 1 Nos. 6 & 7

COURSE OUTLINE	GUIDES
(b) Occupancy and contents.	
(1) Characteristics of combustibles, other contents.	
(2) Location of fire detecting and extinguishing systems.	
2. In selecting the place to ventilate, consider the following.	Brady Transparencies Unit 13, Sec. 1 No. 17
(a) Availability of natural openings.	
(b) Location of the fire.	
(c) Direction you wish fire to be drawn.	
(d) Type of construction.	
(e) Wind direction.	
(f) Extent of fire.	Fire Vent. Practices Page 83, Fig. 42 A & B
(g) Condition of building and contents.	
(h) Effect ventilation will have on fire.	
(i) Effect ventilation will have on exposures.	Brady Transparencies Unit 13, Sec. 1 No. 12
3. Top level ventilation procedures.	
(a) Get a ventilating team to roof as soon as fire is located.	
(b) Survey the roof for skylights, ventilators, scuttles, available space for cutting.	
(c) Note exposure hazards that vertical ventilation may jeopardize.	
(d) Coordinate with ground and attack companies.	

COURSE OUTLINE	GUIDES
(e) Observe wind direction with relation to exposures. (f) Note existence of elevated water tanks, parapet walls, chimneys, TV aerials, and other obstructions or weights on roof. (g) Check roof covering - combustibility and cutting characteristics, hot spots. (h) Secure a lifeline - means of escape. (i) Guard openings to prevent firefighters from falling into them. (j) Drive pike pole through opening to break out ceiling or other construction. (k) Cut a large of adequate size hole. (l) Make sure charged hose lines are in place on roof support ventilation and to protect exposures. (m) Remove skylights and other coverings by loosening their supports. (n) Work with wind to back. (o) Exercise care in cutting the opening so that structural supports are not cut. 4. Top level ventilation safety precautions. (a) Provide a secondary means of escape. (b) Prevent firefighters from walking on spongy or springy roofs.	

COURSE OUTLINE	GUIDES
(c) Secure a lifeline to any firefighters entering a weakened roof area. (d) Protect firefighters from sliding and falling. (e) Exercise extreme caution when near electrical wires. (f) Provide proper protective clothing for all firefighters. (g) Where axe is used, be sure standard safety precautions are followed. (h) Always be observant for any hazards. 5. Factors that can destroy effectiveness of vertical ventilation. (a) Improper use of forced ventilation. (b) Breakage of glass. (c) Breakage of skylights. (d) Explosion. (e) Improperly directed fire stream. (f) A burn through. (g) Additional openings between attack team and the upper openings. Note: See FORCIBLE ENTRY for suggested tools and specific methods of opening roofs, etc.	

COURSE OUTLINE	GUIDES
C. Cross or horizontal ventilation.	
1. The structural characteristics of buildings should supply clues in determining whether horizontal ventilation is to be used.	Brady Transparencies Unit 13, Sec. 1 Nos. 6, 7, 15, 18
(a) Examples.	
(1) Type and design of building.	
(2) Height of buildings.	
(3) Wall openings.	
(4) Exterior fire escapes.	
(5) Exposures.	
(b) Buildings to which horizontal ventilation is normally applied.	
(1) Residential buildings in which the fire has not involved the attic area.	
(2) Buildings with windows high up the wall near the eaves.	
(3) Attics of residential buildings which have louver vents in the walls.	
(4) Involved floors of multi-storied buildings.	
(5) Buildings containing large unsupported open spaces under the roof, without fire curtains.	

COURSE OUTLINE	GUIDES
2. Horizontal ventilation and wind.	Fire Vent. Practices Page 102, Fig. 55
(a) Horizontal or cross ventilation may be less effective when there is no wind.	
(b) Horizontal or cross ventilation may be impossible or restricted due to the damage of wind blowing toward an exposure or feeding oxygen to a fire.	Fire Vent. Practices Page 101, Fig. 54
3. Cross or horizontal ventilation procedures.	
(a) Observe weather conditions.	
(b) Observe hazards to exposures.	
(c) Have charged lines ready before ventilation procedure is carried out.	
(d) Survey inside of building wearing protective breathing equipment if possible.	
(e) Open windows from the top on the leeward side for smoke removal.	
(f) Remove curtains, drapes, blinds or other window or passageway obstructions.	
(g) Break windows from the outside if entrance cannot be made into the building.	
Note: See FORCIBLE ENTRY for suggested tools and methods used in horizontal ventilation.	
D. Application of fog as an aid to ventilation.	Fire Vent. Practices Page 107, Fig. 58

COURSE OUTLINE	GUIDES
1. Fog is very effective in absorbing heat and has ability to collect carbon, tar, and ash particles. (a) As water particles absorb heat and collect solids from the heated area, water is converted into steam. (b) Rapid expansion of water into steam helps force smoke out. (c) Water expands 1,700 times its normal size when turned into steam. (One cubic foot of water when converted into steam expands to 1,700 cubic feet.) In extremely hot atmospheres, steam will further expand to greater volumes.	
2. For streams, when projected through a door or window, will move large volumes of air in the direction in which the stream is projected. (This method may be used as a means of ventilation.)	Brady Transparencies Unit 13, Sec. 1 No. 8
3. Effectiveness of the fog method of ventilation depends upon how the fog is applied as well as where and when.	
4. Opening of a door or window on the wrong side of a building may reverse air currents and drive heat and smoke back upon firefighter.	Fire Vent. Practices Page 112, Fig. 61 A & B
E. Forced ventilation - forcing of air currents by mechanical devices. 1. Situations when forced ventilation may be necessary.	Brady Transparencies Unit 13, Sec. 2 Nos. 1-10

COURSE OUTLINE	GUIDES
(a) When the type of construction is unsuitable for natural ventilation. (b) When fire is below street level - basements or subbasements. (c) When there is no fire and it is necessary to remove noxious atmospheres from enclosed areas such as tunnels, buildings, and basements. 2. Equipment used - electric or gasoline engine. (a) Ejectors. (b) Extractors. (c) Exhausters. (d) Blowers. 3. Advantages of forced ventilation. (a) Insures better control of ventilation. (b) Supplements natural ventilation. (c) Speeds rescue procedures and helps safeguard rescue crews. (d) May be used when other methods fail. (e) Reduces smoke damage. (f) Speeds use of smoke deodorants. (g) Promotes good public relations. 4. Disadvantages of forced ventilation. (a) Can move fire along with the smoke, thus extending it laterally.	Fire Vent. Practices Pages 116, 117, 118 and 119

COURSE OUTLINE	GUIDES

(b) Can introduce large volumes of air and thus extend the fire.

(c) May increase the hazard of backdraft.

(d) Dependent upon power (interruption of this power may prove serious).

(e) Employs additonal man power.

(f) Requires special equipment.

VI. Precautions During Ventilation Procedures.

A. Recognizing danger depends upon the firefighter's ability to:

1. Think quickly and clearly.

2. Pass judgment.

3. Plan procedures.

B. Precautions in rescue work.

1. Make entrance at point most suitable for rescue.

2. Wear protective breathing equipment.

3. Firefighters should enter in pairs rather than singly.

4. Rope line should be attached to one team member.

5. Advance through smoke-filled areas carefully to avoid falling through burned-out floors, pits, elevator shafts, or stairways.

6. Feel walls and furnishings with hands for guidance around abstacles in smoke-filled areas.

COURSE OUTLINE	GUIDES
C. Precautions against fire spread - Sufficient charged hose lines should be laid at points of entrance, area openings, and exposures. D. Precautions when entering the building. 1. Protective breathing equipment. 2. Firefighters should advance in pairs and never without a charged hose line. 3. Water fog is valuable in absorbing and settling gases of combustion and expelling smoke. 4. Use instruments to detect flammable and poisonous gases whenever feasible. VII. Other Uses for Ventilation. A. Ventilating lighter-than-air gases. 1. Methane (Natural Gas). 2. Manufactured gas. 3. Acetylene. 4. Ammonia. 5. Carbon monoxide. 6. Hydrogen. B. Ventilating heavier-than-air gases. 1. LPG (Propane - Butane). 2. Gasoline.	

COURSE OUTLINE	GUIDES
3. Kerosene. 4. Benzene. 5. Butadiene. 6. Ethyl chloride. 7. Methyl bromide. 8. Methyl chloride. 9. Naphtha. C. Removal of flammable liquids as an aid to ventilation. 1. Flush with generous amounts of water. 2. Flood dry pits, drains, or traps to prevent entrance of flammable liquids.	